WHAT IS CLAIMED IS:

1. An amplifier, comprising:

an input for receiving a signal to be amplified;

an amplifier device biased to have a nonlinear gain characteristic in the small signal region;

a small signal linearization circuit coupled between said input and said amplifier device for compensating for the small signal nonlinearity of said amplifier device; and

an output coupled to the amplifier device for outputting the amplified signal.

2. An amplifier as set out in claim 1, wherein said amplifier device is an LDMOS transistor.

3. An amplifier as set out in claim 1, wherein said amplifier device is biased in lower class AB or in class B.

4. An amplifier as set out in claim 1, wherein said small signal linearization circuit reduces the input signal magnitude over a portion of the gain response of the amplifier device corresponding to the small signal region.

5. An amplifier as set out in claim 4, wherein said small signal gain adjustment circuit has a gain response substantially opposite to said gain response of the amplifier device.

6. An amplifier as set out in claim 4, wherein the portion of the gain response of the amplifier device corresponding to said small signal region comprises the range of about -15 dB to - 5 dB of maximum input power.

7. An amplifier as set out in claim 1, wherein said small signal linearization circuit comprises a first and second diode in parallel coupled between the signal

input path and ground and a resistor coupled in series with the first and second diode and ground.

8. An amplifier as set out in claim 1, wherein said small signal linearization circuit comprises an envelope detector and a gain control circuit controlled in response to the envelope of the input signal detected by the envelope detector.

9. An amplifier as set out in claim 8, wherein said small signal linearization circuit further comprises a video amplifier coupled between said envelope detector and said gain control circuit.

10. An RF feed forward amplifier, comprising:

an RF input for receiving an RF signal;

a main amplifier receiving and amplifying said RF signal, said main amplifier comprising one or more amplifier devices biased to have a nonlinear gain characteristic in the small signal region;

a main path small signal gain adjustment circuit coupled between said input and said main amplifier for compensating for the small signal nonlinearity of said one or more devices in said main amplifier;

a main amplifier output sampling coupler;

a first delay coupled to the RF input and providing a delayed input RF signal;

a carrier cancellation combiner coupling the delayed RF signal to the sampled output from the main amplifier and providing an error signal;

an error amplifier receiving and amplifying the error signal;

a second delay coupled to the output of the main amplifier;

an error injection coupler combining the output from the error amplifier and the delayed main amplifier output from the second delay so as to cancel distortion introduced by the main amplifier; and

an RF output coupled to the error injection coupler output and providing an amplified RF output.

11. An RF feed forward amplifier as set out in claim 10, wherein said error amplifier comprises one or more amplifier devices biased to have a nonlinear gain characteristic in the small signal region and said RF feed forward amplifier further comprises an error path small signal gain adjustment circuit coupled between said carrier cancellation combiner and said error amplifier for compensating for the small signal nonlinearity of said one or more devices in said error amplifier.

12. An RF feed forward amplifier as set out in claim 11, wherein said main amplifier and error amplifier devices are biased in lower class AB or in class B.

13. An RF feed forward amplifier as set out in claim 10, wherein said main path small signal gain adjustment circuit compresses the RF input signal over a small signal portion of the input signal.

14. An RF feed forward amplifier as set out in claim 10, wherein said small signal portion of the input signal comprises the input signal power region less than about Pin (max) – 5db, where Pin (max) is the saturation level of the main amplifier devices.

15. An RF feed forward amplifier as set out in claim 11, wherein said error path small signal gain adjustment circuit compresses the error signal over a small signal portion of the error signal.

16. A method for compensating for nonlinearity in the small signal region of an amplifier device, comprising:

receiving an input signal to be amplified by the amplifier device;

applying a nonlinear compensating gain to the input signal only when the input signal is in a small signal region and outputting a gain compensated signal; and

providing said gain compensated signal to said amplifier device.

17. A method for compensating for nonlinearity in the small signal region of an amplifier device as set out in claim 16, wherein said amplifier device is an LDMOS device.

18. A method for compensating for nonlinearity in the small signal region of an amplifier device as set out in claim 16, wherein said amplifier device is biased in lower class AB or in class B.

19. A method for compensating for nonlinearity in the small signal region of an amplifier device as set out in claim 16, wherein said small signal region of the input signal comprises the input signal power region less than about Pin (max) – 5db, where Pin (max) is the saturation level of the amplifier device.

20. A method for compensating for nonlinearity in the small signal region of an amplifier device as set out in claim 16, wherein said amplifier device nonlinearity comprises a gain expansion in the small signal region and wherein applying a nonlinear compensating gain to the input signal comprises applying a gain compression to said input signal.